

VIRGINIA WILDLIFE

Published by VIRGINIA COMMISSION OF GAME AND INLAND FISHERIES, Richmond 13, Virginia

A Monthly Magazine Dedicated to the Conservation, Restoration, and Wise Use of Virginia's Wildlife and Related Natural Resources, and to the Betterment of Hunting, Fishing and Outdoor Recreation in Virginia

COMMONWEALTH OF VIRGINIA



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Cove

"Virginia Nightingale" was the name first settlers gave the cardinal because its melodious voice reminded them of their favorite English bird. Nine years ago the cardinal finally came into its own when the General Assembly unanimously passed a bill, on January 25, 1950, making it the official bird emblem of the Old Dominion. In our colorful Christmas cover drawn by Lorton, Virginia, artist Edward J. Bierly, a male (bright red) and a female (pinkish-brown) are shown perched among the brightly colored fruits of the American holly.

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Why Not a More Natural Christmas?

BY the time you find this issue of Virginia Wildlife in your mail box, the pleasantness of Thanksgiving Day will be but a memory and the Christmas season will be on full flush. Most pronounced of all activities will be the rush in buying gifts. The tempo is like a forest fire. First there is the spark, then the smoke and flame, and finally the runaway fire. Christmas Eve shopping is the ground fire erowning into the tree tops.

This year, more than last, there will be more of everything—material goods and goodies to satisfy almost every human whim and wish. There will be more toys, more clothes, more gadgets, more of everything than ever before and the atties and closets will never have been so full.

While it is good that we should have so much and our economy needs to be kept rolling, the question arises sooner or later, why all this emphasis on the material? Why all the superficial? Why all the noise? Is this what Christmas is supposed to be? What has happened to the simplicity so vividly portrayed by the Child in the Manger—by the naturalness of the Christmas seene and season at Bethlehem?

Sour grapes? Not exactly. This is a serious question for Americans who recite, often glibly, "In God we trust."

In the early days Christmas was more of a family affair and a doing experience, and the buying of ready-made gifts was of minor consequence. Now it is the other way around. Today we buy everything including the tree and greenery, both of which are often completely artificial. Then we wonder what is missing.

One of the things that is missing these days is the time-honored eustom of bringing the natural world indoors at Christmas and getting the whole family, especially the children, to take part in those highly personalized experiences that make the preparation as well as the event meaningful.

Take the entting of your own Christmas tree, for example. What a memorable and joyous experience that can be. In my day, in the country we sought out the fragrant hemlock for a Christmas tree and in the process, year in and year out, this beautiful evergreen with the purplish-brown bark and fan-like branches of emerald needles became our favorite tree. The fullest and best trees grew on cool, north slopes of the ridges and there we always were startled by the flush of the thundering grouse and the jump of the

cottontail rabbit.

The making of wreaths and garlands for the doorways and windows brought us additional pleasant experiences. There were always the father-and-son trips to the bogs after trailing ground pine, where the wild eranberries grew and where it was always easy to piek a poeketful of red teaberries. Not to be overlooked, too, was the gathering of sprigs of holly and mistletoe. The latter grew in the tops of the "limby" water oaks and river birches, and this necessitated mastering the art of shinnying. This you do by first placing vonr right ankle frontside against the tree then wrapping your left leg around the back side of the trunk and pulling vonrself, froglike, pell-mell up the tree. It's hard work and you skin your arms and legs easily if you're not eareful. You appreeiate a sprig of mistletoe, believe me, when you work this hard to get it.

It is true that there is not quite the opportunity today to engage in all of the outdoor activities which characterized the old-fashioned Christmas, but there is opportunity enough. The point is, we must be willing to do it. Places can still be found where a landowner, with the courteous and right approach, will gladly give you permission to cut a Christmas tree on his place or to gather greenery. Permission, too, can be obtained from forest officers for you and your family to obtain a tree from the national forests, provided it is not to be sold but used only for personal needs.

When one has the initiative and the will, it is surprising what can be done. William T. Davis, noted early American writer and editor, once observed that it seemed to him that the people who lived closest to the natural world seemed the happiest people. Their wants are simple and their sources of enjoyment are everywhere. After a visit to Thoreau's famed but humble cabin on the shores of Waldon Pond, outside of Concord, Davis wrote in his journal: "With nature, books, and baked beaus a man may make out tolerably well on this earth."

Our life is what we make it, and our Christmases will be just what we make them. If we want to make Christmas more meaningful, we will have to dwell less on the outer manifestations of it and more on developing and embellishing ourselves from within. Making Christmas for you and your family more of what it was meant to be is a good place to begin.—J. J. S.

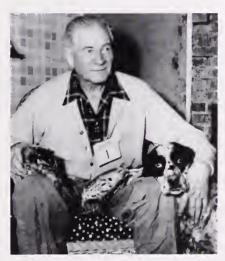
From All of Us. To All of You,

A Herg Merry Christmas

The Future of Duck Hunting



"There can be na daubt about the duck shortage . . . (but) the pleasure af duck hunting can be preserved for future generatians pravided we have a full measure af private and public caoperatian."



Sen. Robertson with his hunting companion.

By A. WILLIS ROBERTSON

Senator from Virginia, United States Congress

Senntor A. Willis Robertson started hunting and fishing when he was nine years old and has been an nrdent outdoorsman ever since. In 1916 he sponsored in the State Sennte, along with Honornble C. O'Conor Goolrick and Honorable Holman Willis on the House side, the legislation to create a game department with county and city game wordens to enforce a new hunting and fishing code. In July 1926, he was appointed chairmnn of the game commission pursunnt to legislation that made it independent of the Commission of Fisheries and served in that capacity for six years. During that period, he was a member of the Advisory Committee of the U. S. Biological Survey (now the U. S. Fish and Wildlife Service) on migratory birds. In 1934 he was named chairman of the House Select Committee on Wildlife Conservation and served in that capacity for the following twelve years during which time he sponsored the Duck Stamp Act, the Pittman-Robertson Act and the Coordination Act that required consideration of wildlife interests in water impoundments by army engineers. For eight years he served us n member of the United States Migratory Bird Conservation Commission, which selects the refuge sites purchased with Duck Stamp money. In 1946, he received the Field and Stream nward as being the outstanding conservationist of the nation for that year. As n member of the Senate Appropriations Committee he has supported funds for all phases of conservation—forestry, soil conservation and the fish and game activities of the U. S. Fish and Wildlife Service, He is personally familiar with wildlife conditions not only in mnny states of this Union but also in mnny foreign countries.

Y life has been lived within the shadows of the Blue Ridge Mountains and consequently my hunting has been principally for upland game. As a school boy, I read Bryant's poem, "To A Waterfowl," which included two favorite lines:

"Vainly the fowler's eye might mark thy distant flight to do thee wrong

As darkly painted on the crimson sky thy figure floats along."

But it was not until I became Chairman of the Commission of Game and Inland Fisheries that I was privileged to become better acquainted with migratory birds and to enjoy the great pleasure of duck hunting. By that time, market hunting had so depleted the supply of ducks and geese that the United States and Canada negotiated a treaty for their future conservation and the Congress

passed a law authorizing the President to promulgate hunting regulations with the force and effect of federal law. However, soon after I commenced duck hunting, when to me as a mountaineer, the flights at Back Bay of ducks and geese against the skyline at sunrise were fabulous and the bag limit of 25 ducks very liberal, there were two years of extreme drought in the breeding areas of our northwest and the Canadian prairie provinces that wrought such havoc with the duck supply that some predicted that waterfowling would soon become a thing of the past. As a new member of the House of Representatives, I organized a Select Committee on Wildlife Conservation which sponsored a breeding and refuge program for waterfowl, to be financed by a special license known as the Duck Stamp, and the Pittman-Robertson Act for grants-in-aid to the states, while a group of sportsmen organized a corporation

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called "Ducks Unlimited" to finance breeding operations in Canada. Added to those two activities was the helpful cooperation of the state game departments and a fine group of sportsmen throughout the nation. For the next 15 years, there was a steady increase in the supply of ducks and geesc although not as great on the Atlantic Flyway as on the other major flyways of the continent.

During the past three years, we have witnessed a steady decline of ducks, especially on the Atlantic Flyway, due in part to an increase in hunting but primarily to adverse conditions in the breeding areas both in this country and in Canada. According to officials of the U. S. Fish and Wildlife Service, with whom I have conferred, the supply of ducks in Virginia this fall will be the smallest in recent years, especially with respect to three species of diving ducks—the canvasback, the redhead and ruddy ducks. The gravity of this situation cannot be over-emphasized, but we can continue to enjoy the pleasure of the flight of ducks at dawn against a crimson sky and pass that joy on to future generations provided we recognize the danger that threatens a future supply as clearly as we did in the crisis of some 25 years ago.

There can be no doubt about the duck shortage. The situation has been thus described by the U. S. Fish and Wildlife Service:

"Although the degree and severity of the duck shortage still seems at issue, there now appears to be general agreement that we are faced with a marked decline in the waterfowl population. This situation is the result of a continuing period of drought in the principal waterfowl breeding grounds in the prairie pothole region of the north central United States and the adjacent provinces in Canada. Coupled with this denial of nesting opportunity in the best breeding range was a spring of unusually cold weather in the more northerly areas to which the ducks were forced to go. Thus, there was less nesting success in these secondary areas where production is lower under the best of conditions.

"This is not the first time that drought has restricted waterfowl production. It is probable, we're told, that it always has occurred, even in pristing times. The most recent severe decline was, of course, that of the mid-thirties."

However, declines now and in the future will be a matter of constantly increasing concern, because we are faced with a steadily mounting loss of needed wetland habitat as a result of encroachment by agriculture and industry—an expensive and unwise drainage program which I have opposed. At the same time, there are more hunters, increasing the annual kill. Until we can find how to change the first trend, in the loss of habitat, and develop management techniques to increase production to keep better apace with increased hunting and put these techniques into practice, we have good reason to be concerned with any decline in the number of ducks. There is always a possibility in such circumstances that the basic breeding population of some species may get so low they will not recover.

Although all nesting species of the prairies are affected by drought, the canvasbacks, redheads, and ruddy ducks usually seem to suffer most. The biologists explain this on the basis that these overwater nesters are the first to lose their nesting habitat. In addition, they are more susceptible to predation when water areas dry up. Furthermore, they are less adaptable to change of territory.

That's why restrictions on the kill this year are more drastic with respect to canvasbacks, redheads, and ruddys—only one of which may be taken and possessed in our flyway. Even though it is legally proper to take one of these three birds during a day afield, hunters should avoid doing so. These endangered ducks need every possible help.

When the comprehensive breeding ground surveys showed the declining trend of the past two years had continued this year, the U. S. Fish and Wildlife Scrvice, after consulting with the delegates of the Flyway Councils representing the states and other prominent conservationists, took action through regulatory restrictions to protect the basic breeding supply of waterfowl.

Wildlife is a renewable resource and, as such, responds to the natural laws of replenishment. Given a chance—unless reduced to too low a level of supply—most forms of wildlife will make a speedy recovery. The pleasure of duck hunting can be preserved for future generations provided we have a full measure of private and public cooperation.

Our big needs in the United States and Canada, in fact the entire continent, are mainly three: provision of adequate summer and winter ranges for our waterfowl; continued promulgation of basic and applied research to

If the modern duck hunter will take a tip from the old timer who had to moke every shot count, he will be daing a favor for himself and far the cause of waterfawl canservation. Wait until you con see the duck's eyes before you shaot. By the time it is close enough far you ta see its eyes, it is close enough for a clean kill. It is also close enough for you to see whether or not the bird upon which you have drawn your bead is a convasback, redhead, or ruddy. If it happens to be one af those three species, don't shoot! Those three species are in a serious condition and must be given all possible protection.





U. S. Fish and Wildlife Service Photo

In 1934, as a new member of the House of Representatives, the author organized a Select Committee an Wildlife Conservation which spansared a breeding and refuge program for waterfowl, to be financed by a special license known as a Duck Stamp. The result has been the establishment of valuable waterfowl breeding, resting and wintering refuges throughout the United States, such as the one illustrated - - (Crab Orchard Refuge in Illinais).

give us the facts we need to intelligently and wisely manage the resource; and public understanding and support for regulations aimed at balancing the harvest with the annual increment.

This will take united effort. It will take a close working relationship between the states and the federal government, between our federal government and that of the Dominion of Canada and the Republic of Mexico. It means the state wildlife agencies and the U. S. Fish and Wildlife Service must pursue vigorously a bold program of more wetlands acquisition, better wildlife protection, and more effective communication to create public understanding. It means that waterfowlers everywhere and wildlife conservation organizations everywhere must join hands and backstand the wildlife agencies across the land who are striving to put their conservation programs across.

Mexico and Canada Reduce Bag Limits on Migratory Waterfowl

Mexico and Canada have joined the United States in providing additional protection to migratory waterfowl during the critical period now being experienced by these birds, the Fish and Wildlife Service, Department of the Interior, reports.

In Mexico bag and possession limits have been reduced and in Canada bag limits have been reduced and hunting seasons shortened in two provinces, Alberta and Saskatchewan.

The changes in the Mexico regulations are the first made since 1954. The new regulations not only provide for smaller bag and possession limits of migratory waterfowl but also for the reduction of bag and possession limits of other game birds. The hunting season on one group of shore birds is reduced by 30 days.

Duck hunting in Mexico begins November 16 and continues through March 15, the same as in previous years but the bag possession limit is 10 instead of 15 as formerly.

Mourning and white-wing doves can be taken in northern Mexican States from September 1 to December 31 but the bag and possession limit is 10 instead of 20; throughout the rest of the Republic doves may be taken from November 16 through March 15 but the bag and possession limit is 10 instead of 15. The limits on rails and gallinules is 10 instead of 15; on snipe 10 birds instead of 20 and the snipe season is cut by 30 days.

In addition to reducing bag limits and shortening the season in the two Provinces, Canada has also reduced the number of birds which may be exported by Americans who go to the Provinces to hunt. Special reductions are noted on canvasbacks and redheads in Canada.

In Canada and Mexico, the hunting pressures are not as heavy as those of the United States. In certain sections of Canada there are waterfowl depredation problems which are considered in fixing the bag limits.



The Hirsch, Germany's largest deer, are mast frequently faund in the deep forests, and are regarded as a great prize by mast American hunters.

Photo by the Author

Hunting in West Germany

By K. H. WILLERS Lt. Col., U. S. Army

AIDMANNSHEIL." This term, which means "hunter's luck," is invariably used by German huntsmen as a greeting when gathering for the hunt. Its meaning and use is one of the first things taught to the American neophyte undergoing the course of instruction that is necessary, together with a passing mark in a pertinent examination, in the acquisition of a German hunting license. To be sure, to greet one's hunting companions in this way is to follow a custom that is but one of many that are as faithfully observed. In fact it is believed that this observance of centuries old customs together with a rather rigid enforcement of more modern hunting rules and regulations serves to explain in part why, after a thousand years of hunting in Germany's beautiful valleys and hills, game still abounds in them. Needless to say the system that has evolved over this period seems to be manifestly satisfactory to the Germans.

All hunting lands in Germany are divided into areas of varied size called reviers. These are divided into three general classes which include State forests, private areas, and so-called Gemeinde areas. As the name implies State forests are State owned and are generally administered by the Central Government's Land Forest Department. This control is actually exercised by that very interesting figure, the Forester or "Jaeger." This individual, who is of course a professional forester, will invariably have a detailed knowledge of the wildlife inhabiting his forest, and when the American hunter has obtained permission to try his luck in a given area he will be accompanied by the Forester who will guide him to the best sites and point out the particular animal that may be shot.

The hunting rights on woodland areas other than those owned by the State belong to individuals whose holdings exceed 200 acres or to groups of landowners each of whom owns less than 200 acres of land. In the latter case the holdings of these small landowners are grouped together into the previously mentioned Gemeinde, and the hunting

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rights thereon are invariably sold to the highest bidder. Private owners of 200 acres or more may likewise lease the hunting rights, but this is a matter for each to decide. Leases obtained by individuals or groups usually run for periods of from 9 to 12 years, and the landowner, be he an individual with large holdings or a member of a Gemeinde, does in effect not only sell the right to hunt but the game itself, for the leaseholder becomes the owner of the game on the area for the period of his lease. However, his use of the game is subject to the hunting laws of the country. and along with ownership of the hunting right goes considerable responsibility. For example, any damage by wildlife to the crops of a farmer residing in his revier must be paid for by the leaseholder. He must also assure that wildlife management and conservation is practiced in his revier, and if he himself does not live in its immediate vicinity then he is required to hire a licensed professional hunter to assume the necessary control.

An interesting aspect of the landowner-leaseholder relationship lies in the fact that the ordinary farmer cannot legally hunt the game on his own land unless, of course, he is invited to do so by the leaseholder. Further, individual hunters on State owned reviers have no inherent right to the meat of game that they kill, and if he wishes to take home a nice steak from his buck he must buy it from the State. Needless to say such customs or regulations would find small favor on the American scene. Still another rather hard to understand custom prevails in the matter of wounded game. For example if a red buck is shot and wounded by a hunter in a certain revier, and the animal passes over into another revier before falling and dying, the apparently successful hunter loses his right to the meat (if he did possess such right). Nevertheless the hunter does have prescribed responsibilities in such a situation. These include marking the spot where the animal crossed the revier line, gutting the animal if it dies within his sight, and notifying the neighboring leaseholder of the fact that the dead animal is now in his area. On the other hand he may retain the trophy if such is involved in which case the animal is charged against the quota of the revier in which it was shot. If no trophy is involved, then the quota charge is against the area in which it died. Hard to understand? Somewhat.

The mention of quotas turns one's mind to German game management practices and conservation policies. In general it may be said that there is a basic difference in the aim of the German game management program when comparing it with such in the United States. It is believed that one is correct in saying that in the United States it is a primary purpose of our conservation program to provide at least reasonably good hunting for a very large number of hunters. In Germany it is said that the principal aim of game management is to maintain the maximum numbers of game animals that can be tolerated by agriculture and forestry. It is likewise a matter of concern to the Germans that the finest specimens of deer are conserved so that they may reproduce for the maximum period and thus "improve the breed." At the same time the poorer type bucks are marked for early harvest in the so-called Abschuss Plan or Shooting Plan that must be prepared each year for each revier. The Abschuss Plan, which covers all cloven-hoofed animals except wild pigs, is considered to be a paramount factor in the success of the country's conservation program. This plan serves as a blueprint to the year's hunting by specifying the number and quality of the animals that must be shot during that period. Each plan, which must be approved by Game Management officials of the German Land Government, is rigidly enforced, and insures that over-population or over-hunting will not seriously occur. The Plan will likewise take into consideration the necessity for the maintenance of appropriate sex ratios.

Game management activities in Germany also include control of predators, control of illegal hunting practices, and execution of winter game feeding programs. The principal predator in Germany is the dog. The owner of a dog found running loose in a hunting area is subject to a rather heavy fine, and he may lose his animal. Cats too are in the predator class. In fact cats caught wandering outside a legally placed limit of approximately 200 yards of a habitation may be, and often are, shot on sight. Poaching is said to be rather rare in Germany for the very good reason that under German law the owner of a hunting right, under certain circumstances, may shoot armed intruders.

Species found and hunted in Germany include three members of the deer family, these being the Hirsch or red deer, fallow deer, and red or roe deer. The latter are present in great numbers and may be seen rather frequently while driving along country roads or even the heavily traveled autobahns. Since they are by far the most numerous members of the deer family they are hunted most frequently by the Germans and Americans alike. The roc is a small animal, and a full grown male will seldom weigh more than 45 pounds. These beautiful little creatures prefer to live in small forests from which they emerge in the early morning and late evening to feed

in the meadows and fields. They are quite wary, particularly during the hunting season, possess a keen sense of smell, and some skill and experience is needed to hunt them successfully. Oddly enough the Germans do not consider them to be big game.

The Hirsch, Germany's largest deer, is indeed big game. A mature buck weighing about 275 pounds is considered to be about average size. They are most frequently found in the deep forests of the more mountainous areas, and are regarded as a great prize by most American hunters.

The fallow deer is a rare and interesting animal. Its antlers are palmated and its coloration includes numerous white spots over the back and sides. A mature male fallow is usually weighed in at around 175 pounds.

The most difficult creature to hunt in Western Germany is undoubtedly the gamswild or chamois, that hardy member of the antelope family whose habitat is the Alpine areas of Southern Bavaria. They are also to be found in Austria and Switzerland. They are remarkable climbers and ascend cliffs that are seemingly impossible to traverse. Good equipment and much time, effort and patience are required to get your chamois. Nevertheless many are taken.

The wild boar is by no means the least of Western Germany's hunting attractions. They are relatively numerous though not as plentiful as during the first years following World War II, and may be hunted the year around. The average Keiler or mature male will weigh over 200 pounds. They are often taken on drive hunts, and when wounded may introduce the element of real danger. They may attack man, and one instance is known of a German hunter being disembowled while leaning over a wounded Keiler that he thought was dead.

Perhaps the most highly prized hunting trophy to be taken in Western Germany is the auerhahn, a large black and greyish bird that is classified in the big game category. Mature cocks weigh from 10 to 12 pounds, and are the only sex that may be taken. The auerhahn is extremely shy and wary, lives in densely wooded areas, and the American hunter who would secure one must, without exception, be accompanied by an experienced guide.

As has been mentioned previously, those who aspire to obtain a German hunting license must pass a prescribed examination that is normally given following a course of instruction that covers all phases of hunting including hunting laws, safety regulations, use of weapons, hunting customs, and distinguishing characteristics and life cycles of species to be hunted. During the course of instruction one becomes very much impressed with the high standards of sportsmanship that are demanded by the German hunting fraternity. In fact each German hunting license bears the so-called Ten Commandments for the Sportsmanlike Hunter. These are:

- 1. You must consider hunting a recreation and not a source of meat or money.
- 2. You must adhere to the game seasons and shooting plan and keep record of the game taken.
- 3. You must not shoot at cloven-hoofed game with shot but always use rifle or shotgun slug.

(Continued on page 12)



"Forestry in the South is on the verge of tremendous change and growth. . . . Forest products are the one crop for which there is no expected surplus."

The Future of Forestry in the South

By R. J. PRESTON, Dean
School of Forestry, North Carolina State College
Commission Photos by Kesteloo

ORESTRY in the United States, and especially in the South, is on the threshold of a period of growth and new development which will dwarf achievements of the past. Experts predict that by the year 2000 there will be a population increase of 100,000,000. Much of this will be in the South, as this is the last section of the United States to have its boom period. With its favorable climate and abundant resources, no other section of the country has greater opportunity for economic development. The United States Forest Service, in its publication "Timber Resources for America's Future," predicts that this increase in population will require nearly twice the present production of wood. The South is expected to supply at least half of this demand.

Until quite recently forestry practices have been relatively simple and practical and have not required a highly scientifie background. This situation is changing with startling rapidity. The forester of the present must have a well-rounded scientifie and technical background in order to handle the increasingly difficult and complex requirements of his job. We are already far beyond the cra when the tools of the forester consisted largely of the axe, saw, planting dibble, and fire flap. Today's foresters must be able to interpret or apply such diverse tools as forest photogrammetry, plotless eruising, site index determinations, and quality control, to name but a few. The forester of the near future will require a still more intensive scientific training to be capable of applying to forestry the wealth of new coneepts and techniques that are continuously appearing in the scientific literature.

In my opinion the future of southern forestry will largely

be shaped by the following six considerations:

1. Increased demand for forest products

Forest products are the one crop for which there is no expected surplus. If the price of stumpage rises as much in the next 20 years as it has in the last, forest products may well be one of the most profitable crops that can be grown on our farms. The increasing demand for wood products has started a far reaching chain reaction of increased competition for raw material, resulting in increased values for land and stumpage, in turn resulting in increased profits for the landowner and leading to increased efficiency and intensity of forest management. Increased per-aere per-year values lead to a public sentiment that results in decreasing losses by fire and a reduction in poor cutting practices.

2. Scientific advances

Research is opening new vistas in all branches of forest production and utilization that will have profound effects on southern forestry. Genetics is pointing the way to grow forest trees of desired shape and wood quality. Such factors as density, fiber length, rate of growth and even the cellulose-lignin ratio may be genetically controlled with as far reaching results for forest trees as has been the case with corn, tobacco, and other crops.

Soil science, including moisture relations, fertilization, and structure, is recognized as having a vital influence on forestry practices. Insect, disease, and wood decay control are providing means for reducing substantial losses. Silvicides have permitted extensive hardwood control. The application of statistical methods to all branches of forestry has resulted in significant management techniques which

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The farester must have a well-rounded scientific and technical background in order to handle the complex requirements of his jab.



Choin saws (as used abave), mechanical loaders (belaw), gang saws, heavy tractors, radio, aircraft, and new fabricating machines are revalutionizing farestry.



A few years aga anly about ane-third of the wood in a tree served o useful purpose; naw some mills are using even the bark and sawdust.



include quality control and linear programming.

Scientific research is producing a great variety of new and improved products. The chipping of slabs and waste at lumber mills, the development of chipboard, new glues, and new types and uses for paper are examples of these rapid changes. A few years ago only about one-third of the wood in a tree served a useful purpose, the rest being wasted or lost; now some integrated mills are using even the bark and sawdust so that only the roots and smaller limbs are not being put to use. Startling new research achievements will make for even more radical and rapid changes in all areas of forestry from seed selection to the manufacture of finished products.

3. Mechanization

Mechanization has had a profound effect on forestry in the last decade; in land clearing, fire fighting, reforesting, harvesting, hauling, and manufacturing. There has been amazing progress in new and improved machinery. Each year finds less place for cheap, unskilled labor, and a reduction in the hard physical labor that formerly characterized the wood industries. The chain saws, mechanical loaders, gang saws, heavy tractors, radio, aircraft, and new fabricating machines are revolutionizing forestry. Fantastic machines are now cleaning the jungles, harvesting the forests and manufacturing complex products with a minimum of required manpower.

4. Leisure time

Each year Americans have more leisure time and more income to spend on recreation. In the last nine years the use of forest land for outdoor recreation is said to have increased 400 percent. This increasing recreational use of the forests often conflicts with use for production of forest products and will become an increasingly severe problem as population pressures mount. The resolution of the conflicting interests of the timber grower, hunter, camper, and nature lover is a major problem of the present and future.

5. Water supply

Even in the humid South, in many areas water is fast becoming the limiting factor for economic development. In the not-too-distant future, our forests may be recognized as being as important for the water they produce as for their wood products. The management of the forests to provide maximum production of timber and water will be a vital factor in future forestry.

6. Taxes

Every facet of our economic life is affected by the tax structure. The future of forestry could be more drastically affected by changes in our tax structure than by any of the other factors we have discussed. Unfortunately any change in tax structure is apt to result in negative returns. Changes are now being considered in capital gains treatment given to timber that could greatly reduce forestry expenditures by large ownerships. County taxes on forest land could well be raised to a point making sound forestry practices unprofitable; in fact, this has happened in areas in the North.

In summation, it is my conviction that forestry in the South is on the verge of tremendous changes and growth. Nearly two-thirds of the land area of this great region is



The use of forest land for outdoor recreation has increased 400 percent in the last nine years.

now in forest, and this area is increasing each year. As research uncovers new tools and techniques, and as increased population and living standards make new demands for wood, I am convinced that forestry will occupy a position of ever increasing importance.

HUNTING IN WEST GERMANY

(Continued from Page 9)

- 4. You must observe the result of your shot and conscientiously search for wounded game.
- 5. You cannot hunt outside the boundaries of your revier and must report to your neighbor when wounded cloven-hoofed game crosses into his revier.
- 6. You must keep a good hunting dog or be sure that one is available for your use.
- 7. You must dress the game killed in a sportsmanlike manner and register it in accordance with the established controls.
- 8. You cannot use any kind of traps which will strangle the game.
- 9. You must care for the game but not overdo it-quality, not quantity, of game is the goal.
- 10. You must also care for your revier during the off season and feed the game in time of need.

Good sportsmanship and strict observance of the old hunting customs are indeed the hallmark of the serious German hunter, and when at last he leaves this world, and is laid to rest, a last green branch, broken from a tree of the forest he loved so well, is placed on his coffin as the hunting bugles blow "Jagd vorbei."

Rights of way for Wildlife

The grass on the plot is about two feet high. Seeds from lespedeza and clover drop to the cool ground. A covey of quail marches methodically through the grass, hunting for and finding food. A rabbit relaxes from prying eyes under the safety of the ground cover.

Sound like a protected habitat set up by the state Commission of Game and Inland Fisheries?

Not quite. It's a perfectly functional stretch of right of way beneath a power line of Prince George Electric cooperative, Waverly.

It was five years ago when a representative of the Commission of Game and Inland Fisheries approached Frank Remorenko, Jr., manager of Prince George co-op, and suggested that the co-op's rights of way could usefully serve two purposes—to provide access to the power lines and to provide ideal homes and food for the area's diminishing wildlife.

The idea sounded good to Mr. Remorenko and to Prince George's board of directors. There was only one problem: the co-op had to send workmen around the rights of way only about every four years to keep underbrush cut down. Would the expense of removing the underbrush and sowing the rights of way in grass be too expensive to justify?

The board asked Mr. Remorchko to find out. He came back with a study which showed that, though the initial cost of removing brush and sowing grass was higher than the cost of occasional brush cutting, the long-range advantages of grass-sown rights of way more than offset the initial cost.

The Prince George board authorized the co-op to cooperate with the Commission of Game and Inland Fisheries to remove brush from 50 miles of right of way and sow the land in grass. The commission supplied the lime, fertilizer, seed and technical assistance; the co-op did the rest.

Those first 50 miles turned out well. Not only did the co-op's problem of maintaining the rights of way become small, but rabbits, deer and birds quickly found that the grassy stretches were just what they were looking for.

Wildlife populations, depleted in the co-op's area because farmers were clearing more and more land, began to rise. Hunters were not the only persons pleased by the new grassy rights of way. Women's clubs, conservation groups and tourists praised the beauty of the grassy stretches, many of them alongside highways.

Since that modest start, Prince George co-op has gone a long way toward sowing its rights of way in grass; several other electric cooperatives in the state have followed suit.

Of Prince George's 660 miles of right of way, one-half is cleared, and one-half of the cleared right of way now is seeded in grass.

"The program has worked out well," Mr. Remorenko said. "Once we have bulldozed a right of way and seeded it, we never have to go in and do it again."

Mr. Remorenko said that a farmer-member of the co-op summarized the entire program better than anyone clse. He said:

"I don't know of any other single thing that has done more for the wildlife in this community than your present seeding program."

From Rural Virginia, Vol. 13, No. 7

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VIRGINIA WILDLIFE

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CONSERVATIONGRAM

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Commission Activities and Late Wildlife News... At A Glance

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STRIPED BASS RULE PROPOSED BY COMMISSION. The Virginia Commission of Game and Inland Fisheries, at its regular meeting October 23 in Richmond, voted to advertise statewide several proposals for changes in fishing regulations, the most significant of which would limit Buggs Island Lake and Roanoke River fishermen to eight striped bass over 12 inches in length in their creel. The stripers would be counted with black bass in the bass creel limit. Other proposals to be voted upon on December 11 simply eliminate unnecessary regulations and combine similar regulations.

The game commissioners passed a resolution of tribute to the late Commissioner Thomas G. Herring and welcomed his successor, Commissioner A.Ree Ellis of Waynesboro.

REWARD OFFERED FOR MISSING FISH TAGS. Good luck charms . . . maybe that's what fishermen think those metal and plastic fish tags are, says fish biologist Jim Padfield, concerned because only 21 of 249 tags placed on largemouth and smallmouth bass in the South Fork of the Shenandoah River last June have been returned to the game commission, suggests that anglers may have the tags in their pockets and have just put off sending them to Box 1642, Richmond. Information on the length of the fish and date and place of catch is desired, but not neccessary. The commission will pay one dollar reward for each one returned. Tag returns to date indicate that, while most of the fish remained within a mile or two of where they were tagged, one fish moved over 25 miles downstream from Rileyville to below Front Royal.

DIVISION OF FORESTRY OK'S HUNTING ON STATE FORESTS. The Virginia Division of Forestry and Commission of Game and Inland Fisheries have announced that the 1959 - 1960 hunting seasons and bag limits for the Appomattox-Buckingham, Cumberland and Prince Edward State Forests will conform with the seasons and bag limits for the counties containing these forests as listed in the current hunting law The sanctuary surrounding the state game farm on the Cumberland Forest will be closed to hunting, as will be the 588-acre portion of the Prince Edward State Forest near Green Bay known as the Gallion Forest. One-dollar stamps required to hunt on these areas may be obtained at the clerk's offices in the aforementioned counties and at State Forest Service offices at Charlottesville, Farmville and Cumberland. Stamps can also be purchased at Gowin's Service Station on Route No. 24 near forest headquarters, and at the state game farm near Cartersville. State forest maps will be available where stamps are sold.

COMMISSION EXPERIMENTS WITH WILD TURKEYS, REEVES PHEASANTS. Virginia's game commission recently took two big steps toward providing better bird hunting in the Old Dominion's forested uplands. Game division biologists, for the first time, used a chartered airplane instead of a truck to transport 65 wild turkeys trapped with a cannon net on the Gathright and Big Levels wildlife management areas to southwest Virginia counties, including Montgomery, Smyth and Giles, where turkey populations are low and where the turkey season has been closed for years. Airplanes cut time "out of the wild" to only five hours and thereby reduce losses of birds. In connection with its foreign game introduction program, the Virginia commission received 15 hen and 15 cock Reeves pheasants from Ohio's Waterloo Experimental Game Farm. These colorful birds, to be propagated at the state's Cumberland Game Farm, may do well in woodlot terrain in Virginia's western Piedmont, the commission hopes.

13 DECEMBER, 1959



Traditional wintering grounds of hundreds of thousands of waterfowl, Back Boy ond Currituck Sound hove held for fewer birds during the last three years than formerly. Why? Biologists are trying to find the onswer.



Woter chemistry tests ore usub the acidity of woter somples filester



Twice o week, John Sincock tokes an oeriol woterfowl census of the study oreo with worden Lindsoy, pilot.



He records the number of waterfowl seen using o dictation mochine, and adds up the totals later in the office.

Back Bay-Currituck Su

Commission L

During the winter of 1955-1956, for some uplants) broke away from the bottom of Back. Carolina, and floated out to sea. Since that areas have been much smaller than in forme the best shooting on the Coast.

Now specialists from the Virginia Commission game biologist), the North Carolina Wildlif Rou ologist), and the U. S. Bureau of Sport Fish and ologist) are working full time on the interstal waterfowl use and find a possible remedy. The of the suspected factors. Working with this leader Charles P. Gilchrist and fish biologist for

Joe Coggin and warden Otto Halstead check a tong-full of bottom soil for sogo tuber production.





h determine the salinity and m,fferent parts of the bay.



Praject bialogists use aqualungs ta abserve aquatic vegetation without disturbing it in its natural habitat, and to study battam silt and "muddy spats" in the water.

and Study Underway

ote iy Kesteloo

ak own reason, the "grass" (submerged aquatic ay, Virginia, and Currituck Sound, North tile wintering waterfowl populations on these yars, when Back Bay was famous for some of

Description of Game and Inland Fisheries (Joe Coggin, Jesources Commission (Art Dickson, fish birtis and Wildlife (John Sincock, waterfowl birtis are, trying to determine the factors limiting oldity, salinity, disease, and nutrients are some tree-man research team are Virginia project Roert Wollitz.

Sincock and Coggin use a phatameter ta find haw much light is available ta plants at various depths.







Bleed the animal as soon as possible after the kill is made.

Handling Your Big Game Kill

By RAYMOND SCHUESSLER
Buffalo, N. 1.

AG the animal as soon as it is killed and do not destroy evidence of sex. As soon as possible after the animal is shot (unless you want to save the head for mounting) insert knife at the point of the brisket and cut forward towards the head, turning the animal with its head downhill so that it will bleed freely. A shot in the chest region usually makes bleeding unnecessary, however.

Open carcass from crotch to throat, being careful not to puncture the intestines or the paunch; use the belt ax on the breastbone, and in all operations prevent hair from coming in contact with the mcat. Cut around the vent and loosen the organs in the pelvic cavity. Now turn carcass with the head uphill. Cut windpipe and gullet free at throat. Hold these in your hand and pull backward, at the same time cutting free from carcass any part that tends to hold. Remove all internal organs to base of tail. If the animal must be taken out of the woods before cooling and quartering, leave the liver and heart in the body cavity.

Open chest cavity by spreading with a stick. Drain off blood and wipe with a clean cloth. Do not wash with water. Trim away all parts damaged by gunshot.

Cooling

Because the animal's body heat causes rapid spoilage, your kill should be completely cooled as soon as possible, preferably by hanging in a shady place.

Larger animals can be hoisted with an improvised winch or with a small block and tackle if you wish to carry it, or spread belly down across logs or rocks so that air can circulate underneath. Black pepper will help in keeping off flies. Pinc or spruce boughs across the body openings will discourage blue jays and other flesh-eating birds.

Quartering

The hide is worth saving and should be removed in one piece if possible. After cooling, remove legs at knee and hock joints and cut careass in half by sawing (or chopping) down the center of the backbone from end to end. Cut sides in two with floating ribs remaining on hind quarters. Place quarters in clean muslin bags and hang in shade. In warm weather hang out only at night and wrap up during the day. Always keep your meat cool.

Transportation

Transportation is, of course, easier if it is possible to pack the animal from the woods in quarters on a horse or in a packsack. If it is necessary to drag or carry it through the hunting territory, use plenty of red flagging. Don't make a target of yourself by carrying an exposed hide or antlers! Don't transport the animal on an automobile fender next to a heated motor. In many hunting areas there are cold storage plants that will freeze and store meat until the hunter is ready to leave for home.

Saving the Head

If you plan on mounting the animal's head special care is necessary. Do not puncture the skin; cut it around the body so that as much as possible of the hide from the shoulder and brisket is included.

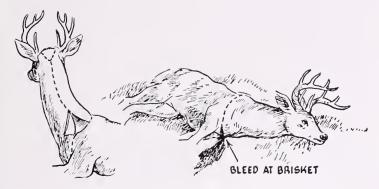
Cut along back of neck and to base of antlers as indicated. Peel skin from neck and head, cutting ears close to skull. Exercise care in peeling skin from around antlers, eyes and lips so that no holes or tears result. Remove all flesh and fat; salt well. After several hours, resalt skin and turn flesh side out to dry slowly in shade. Take care that no folds are left while drying. Do not remove antlers from head except with a saw. A generous portion of skull should be included.

Butchering

You will get more and better cuts if you let a butcher do it for you. But, if you would rather do it yourself, a diagram can be obtained showing the location of the conventional cuts.

Storage

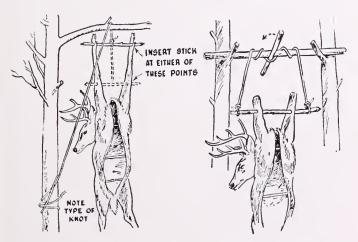
Always unpack meat as soon as possible and cool in



If you plan to mount the animol's head, special core is necessary (see text).

a dry place. If weather conditions permit, it should be allowed to cure for about a week or 10 days before storage. If you plan on cold storage, an initial quick freeze will result in better meat. Fat in cold storage soon becomes rancid; for this reason, and to save space, it is well to strip it off prior to storage. Further space can be saved by boning the cuts. If you wish to save your meat by smoking or with a brine it is suggested that you follow reliable instructions for keeping beef and pork. Be sure of your game laws about storage limits and permit requirements.

Becouse the onimol's body heat couses rapid spoilage, your kill should be cooled os soon os possible.



Lorger animols can be hoisted with an improvised winch.

Southeastern States Join Wildlife Research Pool

Eight southeastern states have joined in a cooperative statistical program in the interests of improving their management of fish and wildlife resources. They propose to accomplish this by cooperating with the North Carolina State College Institute of Statistics, with each state sharing in the costs of the program, according to the Wildlife Management Institute.

The need for such cooperative activity may not be immediately apparent to sportsmen, and it merits explanation. Improved management of fish and wildlife resources rests on research investigations which shed more light on the habits, requirements, and dynamics of fish and game populations. Statistics can play a large part in such a process in that research programs must be designed so that the results obtained are both worthwhile and susceptible to mathematical evaluation to determine their reliability for application as game and fish management tools.

A pertinent research project must be designed so that the information is gathered in a uniform manner that will permit its statistical evaluation. Few states have sufficient funds or statistical research centers available for independent action. By joining in the financing of a cooperative program with North Carolina State College the southeastern states have assured themselves of assistance in the design and evaluation of fish and wildlife research investigations of mutual interest as well as individual consultation on problems peculiar to a single state.

The fish and game departments of Alabama, Arkansas. Florida, Louisiana, Mississippi, North Carolina, Tennessee and Virginia presently are participating in this forward-looking cooperative project. Other states may take advantage of this arrangement, if they desire. Inquiries should be sent to Chester F. Phelps, executive director, Virginia Commission of Game and Inland Fisheries, who headed a special committee of the Southeastern Association of Game and Fish Commissioners to study the need for initiating the cooperative statistical project.

"The use of statistics in fish and game research," the committee previously reported to the Association, "will save time and money and will get reliable results ... frequently it will make the difference between accurate results and unacceptable results."



Commission Photo by Kesteloo

By GEORGE BUTLER

A LOOK AHEAD, to be significant, must be based upon an understanding of both the present situation and the forces that have been at work in the past and that may likewise influence the future. Consideration of these facts, in relation to areas and facilities, reveals a much rougher road than the one portrayed for recreation programs. With the increasing competence of our professional recreation leadership, and with better informed and more highly organized lay support, however, we need not fear for the future.

One or two principles or assumptions are indicated:

- 1. All recreation areas, buildings, and facilities have, as their primary purpose and function, service to people. We must think of them in terms of their contribution to the welfare of men, women, and children and not merely as space and physical structures.
- 2. The requirements of the recreation program determine the types of properties that should be acquired and the manner in which they should be developed. Unfortunately this has not always been the case, for many programs have been determined and restricted by the available areas and facilities.
- 3. A corollary of this, supported by experience, is that creation of a program interest should precede provision of special facilities for it. Many successful programs have been developed with limited facilities. Their popularity and success have resulted in and justified a demand for more or better. Many excellent facilities provided before there was any real demand for them have received relatively little use.
- 4. Although recreation is a distinct aspect of life; it does not exist in a vacuum. Likewise the future programs, areas, and facilities of recreation agencies will be influenced by developments in other fields.

Land

Land for recreation is of fundamental importance, but what is the recreation land situation today? According to the best available data, the growth in park acreage

From an address given at Southern District Recreation Conference, Ogelbay Park, April 1959 by Mr. Butler, director of research, National Recreation Association, and reprinted by permission from June 1959 Recreation magazine. Complete copyright of this text is owned by the National Recreation Association.

since 1940 has failed to keep pace with population gains; the loss was still greater between 1950 and 1955 than in the preceding decade. At the end of 1955, only one city in four met the standard of one acre per hundred population and that percentage would have been smaller if out-of-the-city parks had been excluded.

In view of these figures and of the rapidly mounting competition for land, especially in metropolitan areas, I fail to share the optimism of the experts who, as reported in the January 1959 issue of Recreation, prophesied that within 10 years at least one city in four will have reached twice the recreation space called for by today's standard. Robert Moses may have overstated the case when he said: "No major park acquisition is accomplished except over the dead bodies of obstructionists," but he certainly was pointing out a basic truth. Perhaps this is one reason why in recent years there has been a greater tendency to vote for such items as city auditoriums, stadiums, civic centers, and swimming pools than for land acquisition. Some planners apparently become more timid when proposing land purchase than when recommending its development. Let me cite a single example.

By 1902, eighty percent of the lands presently comprising the pioneering Boston metropolitan park system had been acquired—in the half century since that time only 20 percent had been added. Since 1945, the system lost twice as many acres to other uses as it added, primarily for parkways. Yet in a long-range program developed in 1956, calling for a total expenditure of \$81,500,000, only \$4,000,000 were proposed for land acquisition.

These public funds will and should continue to be the basic source of money for the purchase of recreation lands, but there are one or two lines of action that we must take more aggressively if our recreation acreage is to keep even with population growth.

One relates to the dedication by subdividers of land for recreation. Builders will be convinced that a play-ground in their subdivisions will sell lots at a higher price, according to the prophets cited in the *Recreation* article just mentioned. William E. Harmon, the noted realtor, made a similar assertion 40 years ago, and the National Recreation Association spent large sums trying to demon-

strate it to realtors and planners, to little avail. However, regulations adopted in many eities foreed developers to dedieate land for recreation: the usual result-small, irregular, valueless plots, unsuited for the purpose. More recently adopted regulations have required developers, as a condition of seeuring approval of a subdivision, to eontribute a certain percentage of the total value of their land or a eertain number of dollars per lot or aere. These provisions enabled areas of suitable size, type, and location to be aequired, in aeeordanee with an overall plan. However, the constitutionality of such regulations has been questioned by the courts and their future is therefore uncertain. Because recreation areas, like streets and utilities, are essential for home purchasers, state legislation governing the local control of subdivisions should be amended to recognize recreation space as essential and to authorize regulations requiring that either suitable land or money be contributed for this purpose. Such legislation has been presented in the Maryland legislature.

Gifts played a large part in the aequisition of recreation areas in the early days. Thirty years ago, approximately one-third of the total acreage of city park and recreation areas had been acquired by gift. Comparable figures are not available today, but it is obvious that this ratio has not been maintained. Yet the examples of generous gifts by individuals and families of both large and small recreation areas illustrate the inherent potential of this source.

Purchase. Cooperation with school authorities in the purchase of land designed for school and community recreation use affords another promising means of helping solve the land problem. Such cooperation is logical, economical, and mutually advantageous. The striking advances that have been made in such cooperation during the past decade will inevitably be extended widely in the years ahead. It is encouraging that in its recent booklet School Sites, Selection, Development, and Utilization, the United States Office of Education, perhaps for the first time, wholeheartedly endorsed the principle that eommunity agencies have a share in the planning of sehool properties.

Allies. Sound, adequate systems of recreation areas eannot be acquired without the understanding and support of city-planning authorities. We must enlist them as our allies and make sure that they understand our objectives and requirements. As Hugh Pomeroy, well-known planner, has stated, physical planners do not generally attempt to set standards; they apply standards for areas and facilities set by the professions involved. However, since their plans afford the primary basis for the development of capital programs, including land acquisition, it is of the utmost importance that we provide the planners with proper standards and make sure that they are correctly applied and interpreted.

A person looking ahead is blind indeed if he does not see many roadblocks to the prevention of threatened encroachments. We must face the fact that the battle to retain our recreation lands will continue without let-up: a pessimist would say that the situation will worsen. Here again the planners can be our allies, for they have a hand in the location of roads, fire stations, disposal plants, and

eivie eenters, but we must eonvinee them of the validity of our case. If our properties are badly laid out, poorly maintained, and casually used, we will have difficulty in proving they are saered. If we are holding land for which no use plan has been developed, approved by the authorities, and endorsed by the public, how much support ean we expect in protesting its use for another worthy public purpose? If we have adopted no basic land policies, officially approved by the city authorities, we are deprived of a valuable weapon in fighting proposed eneroachments. On the other hand, if we have demonstrated that we are using our lands intelligently and effectively, we can enlist strong support in combating attempts to take our areas and can at least insist that properties diverted for other uses be replaced.

The planners too can help influence the shape of our eities so we can do a better job. We must recognize the opportunities urban renewal programs offer for getting more land near the city center, not merely for neighborhood parks and playgrounds, but for informal walkways and beauty spots. Town planner Albert Meyer recently asked this pertinent question: "Arc our city and region better off to spend, say \$500,000,000 on highways, or to spend half that on playgrounds, green areas, local community facilities and operations that may give greater happiness and, by keeping people pleasurably where they are, minimize the load on highways, and hence reduce their cost?" We must be prepared to influence such decisions.

Divers Report Reefs Attract New Fish Life

Artificial ocean reefs are beginning to accomplish just what was expected of them. They were established in an effort to attract marine life to former underwater barren areas, thus providing additional sport to anglers.

At Paradise Cove, where old ear bodies were placed on the bottom, 18 species of fish were counted during checkup dives by California biologists. Most common were kelp bass, sargo, and several kinds of perch, including rubberlip, pile, black, barred, shincr, walleye, and rainbow. There now are a fair number of sheepshead and one cabezon was seen for the first time.

At Redondo Beach-Palos Verdcs, where junked streetcars were placed, 11 species of fish were observed, most of them inside the cars. They were: kelp and sand bass, half-moon, blacksmith, two kinds of blenny, sand dab, sheepshead, angel shark, and an unidentified flatfish. Loitering nearby was a school of bonito and three lobsters apparently were trying to decide whether to settle down in the new "housing tract."

At Monterey Oil Island-Seal Beach, large numbers of fish—24 species in all—were counted. Oil crews reported excellent fishing.

The Carlisle report said commercial fishing and cannery interests as well as sportsmen have shown considerable interest in the project and have pledged their support. (*Outdoor California*, January 1959.)

DECEMBER, 1959 19

Virginia's Game and Furbearing Mammals

THE Virginia game, inland fish and dog code defines this state's game animals as bear, deer, elk, fox, rabbit, and squirrel, and its furbearing animals as beaver, mink, muskrat, opossum, otter, and raccoon. The appearance and habits of all of these animals plus the bobcat, woodchuck, and skunk—classed as predatory or undesirable species but still of interest to the outdoorsman—are covered briefly here.

Forest Game

White-tailed Deer (Odocoileus virginianus)

America's most important big-game animal, the white-tail was almost exterminated in western Virginia when a program of importing and releasing deer from other states was begun in 1929. Now deer are found in every Virginia county, and some 26,000 whitetail bucks and does are taken by hunters in Virginia each year—half of them west of the Blue Ridge.

Whitetail bucks differ from western mule deer in the forward curvature of their antlers (shed each spring) and the erect position of their long, bushy tails (white on the underside) when they are startled into motion. The whitetail utters a bleat or snort when surprised.

An adult Virginia buck may weigh 150 pounds or more, be 6 feet long and stand 40 inches high at the shoulder. Does are smaller and antierless. Both have brittle hair, reddish brown (summer) or grayish (winter) above and whitish below.

An inhabitant of mixed brushy woodlands and forest edges near water, the white-tailed deer browses and grazes, usually at dawn or dusk, on a great variety of vegetable foods, including grasses, aquatic plants, herbs, leaves, twigs, buds, nuts, and farm crops. Favorite foods include greenbrier, sourwood, sassafras, honeysuckle, and grape.

One doe or more are bred by each mature buck during the "rut"—the November-December breeding period which is marked by battles between the bucks. The doe's breeding age is 6 months, the buck's at least 1½ years. One to 4 fawns per doe—usually 2—are born in May and June, weighing 5 pounds at birth but gaining up to 70 pounds by fall. Fawns lose their spots and become weaned in 4 months.

Worst enemy of the deer in Virginia is the free-running dog.

Elk (Cervus canadensis)

Elk, or wapiti, as the Indians called this largest member of the deer tribe, once roamed throughout Virginia but were completely exterminated here by 1855. Elk from Yellowstone National Park were released in Virginia in 1917 and in 1935. At present, there may be some 200 elk in two herds in the state, one in Bland and Giles counties, the other in Botctourt and Bedford counties, and a few bulls are taken by hunters during a short season each year.

They are distinguished by their large size (up to 1,000 pounds with antlers up to 5 feet long in the bulls) and their chestnut brown color and buff rump patch.

Highland dwellers, elk graze and browse on many low plants, shrubs and trees, favoring sassafras, black locust, sumac, foxglove, buffalo nut, and also field corn.

At the approach of the breeding season each fall, the bulls make bugle sounds which can be heard for miles, and the fearless old bulls duel with younger bulls to maintain their harems of several cows. All stay in herds during the winter and much of the summer.

Female elk do not breed until 3 years old, and usually have only 1 offspring each year, born in May or June and weighing up to 30 pounds. The fawn loses its spots and is weaned in 4 months.

Because elk are shy, agile, and can see and hear well, they are rarely seen by man.

Black Bear (Euarctos americanus)

Smallest of the North American bears and the only bear in Virginia, the black bear has a straight profile, short and rounded front claws, and a glossy black coat and brown snout. It grows to over 5 feet long and 3 feet high at the shoulder. Adults in Virginia weigh 150-500 pounds.

Once found throughout Virginia, the black bear is now found only in the Allegheny and Blue Ridge mountains and in the Dismal Swamp. It may wander many miles from its normal range in search of its food, which includes almost any vegetable or animal matter: roots, berries, mice, carrion, fish, insects, grass, birds, shoots, leaves, corn, apples, nuts, ants, honey, and sometimes, in the case of old male bears, livestock.

Female bears do not generally breed until the summer of their third year, and then breed only every other year. One to 4 (usually 2) young about the size of guinea pigs arc born in late January. They do not leave the den for 75 days and stay with the mother through their first year, at the end of which they weigh 60-90 pounds.

During the winter, many bears in Virginia go into a prolonged sleep in a simple den under a log or in a cave, but may be quite easily awakened by dogs or other disturbances.

Shy and timid, with excellent senses of hearing and smell, black bears practically never attack human beings unless wounded or otherwise provoked.

Grav Squirrel (Sciurus carolineusis)

Found in every county, the gray squirrel is the most abundant and best known of Virginia's squirrels. Much less common in the Old Dominion are the fox squirrel (larger, rusty-yellowish), the red squirrel (smaller, noisy, in evergreen forests), and the flying squirrel (small, loose skin between front and hind legs).

The gray squirrel grows to 21 inches long (including the tail, which may be 10 inches long) and weighs up to $1\frac{1}{2}$ pounds. It is grayish above, with brownish hair tips in summer, and whitish below; its tail is long and bushy, and usually has a whitish fringe. It is found in hardwood forests, and leaf nests in trees advertise its presence.

Mating takes place December to August. One to 6 young are born 44 days after mating, are blind for 37 days, can leave the den (an old woodpecker nest cavity or a leaf nest) at 6 weeks but are not well furred until 9 weeks old. In Virginia there are often 2 litters per year, one born in mid-February and the other in early August.

Principal foods of old bushy-tail are the buds of plants and various fruits and nuts from trees and woody plants. Preferred are acorns, hickory nuts, and dogwood berries: occasionally taken are insects, insect larvae, bird eggs, and young birds. Weasels, foxes, and hawks, together with man, keep the squirrel population under control.

Bobeat (Lynx rufus)

Common in Virginia's mountains and also present in the Dismal Swamp and other eastern Virginia swamps and thickets, the bobcat is 3 feet long (including a 6-inch tail), stands 23 inches high and weighs up to 40 pounds. It is reddish brown with black spots, lighter below. The tip of the tail is black above and light below, and its ear tufts are small.

Bobcats occasionally slay deer, but rabbits, mice, and squirrels are its usual food. Also taken are other small mammals, birds, and insects. Bobcats are most active after dark.

The female begins breeding when 1 year old, in late winter. Annual litter of 2-4 kits is born after 63-day gestation period, in den in a log, rock ledge, or thicket. Kits are weaned in 2 months and stay with mother until late summer.

Farm Game

Cottontail (Sylvilagus floridanus)

The "bunny rabbit" is the most important upland game animal in America, primarily because of its abundance.

In addition to the eastern cottontail, Virginia's rabbit population also includes the marsh rabbit (dark; small. dingy tail), the New England cottontail (smaller; in mountains), and the varying hare (large; Highland County).

Cottontails are 15 inches long, including the 2-inch, fluffy white tail, and weigh 2-3 pounds. They are brown above (rusty in summer, grayish in winter), white below. Fur is shed in early summer and early fall.

Found near heavy brush or forest edges, it may feed and nest in the open. Its diet eonsists of grasses, herbs, tender shoots, sprouts, buds, soft-shelled nuts, berries, and many farm crops and garden vegetables.

Breeding begins at age of 9-10 months. After promiscuous breeding, during all months but December and January, 4-7 blind and helpless young per litter are born: 3 or more litters may be produced per year. Young can leave nest after 2 weeks.

Foxes, bobcats, minks, skunks, weasels, hawks, owls, snakes and stray dogs and cats include the cottontail in their predatory diets.

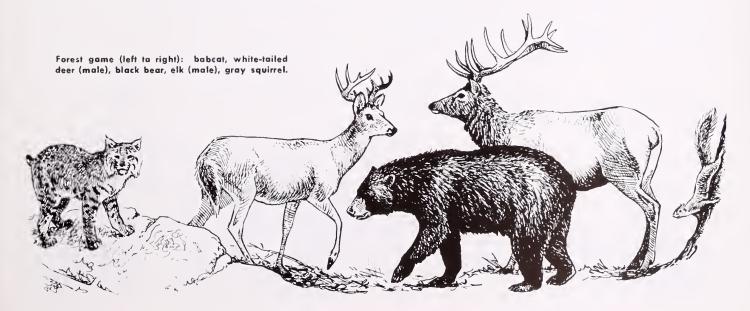
$\mathbf{Red} \,\, \mathbf{Fox} \,\, (Vulpes \, fulva)$

Gray Fox (Urocyon cinereoargenteus)

Two foxes are present in Virginia. The *red fox* is larger (9 pounds), is yellowish red with white underparts and tail tip, and black feet; it is most common in cultivated areas and open woods in coastal and central regions (rare in southeastern counties). The *gray fox* weighs 8 pounds, is grizzled black on the back, gray or reddish on the sides, and the tail is tipped with black; its ears are less prominent than the red's; it prefers wild, forested country, and is more plentiful in the western part of the state than the red.

Both foxes eat rabbits, mice and other small mammals, insects, birds, reptiles, carrion, and fruit. Both are usually monogamous for the season. Breeding takes place January through March, and litters of usually 4 or 5 are born 2 months or less after breeding. Young are weaned in 8 to 10 weeks, and families remain together through the summer.

Both foxes rear their kits in dens or burrows with several



entrances, but, unlike the gray fox, the red fox has no winter den but sleeps in the open. The red fox's den is most often an enlarged rodent hole or natural cavity; the gray often uses a hollow log or rockpile.

The gray fox is more noeturnal than the red, and is a good tree elimber. The red is the more wary, and will run almost indefinitely when pursued. The voice of the fox is a short yapping bark or yelp, the gray's being the deeper in tone of the two species.

Foxes help control the numbers of small rodents but ean reduce rabbit numbers also. They are a permanent reservoir of rabies.

Woodehuek (Marmota monax)

The chuck is a heavy-bodied, short-legged, yellowish-brown to blackish-brown rodent which is found both in fields and meadows, where it eats grass, alfalfa and garden vegetables, and in forests along river bluffs and in cliffs and rockslides, where it eats leaves, bark, berries and nuts. It is active mostly in daytime.

Males weigh 5-10 pounds and may grow to 27 inches long, including a 6-inch tail; females are smaller. Mating takes place in March and April, after hibernation; 2-8 helpless 4-inch young are born a month later, are weaned in 5 weeks. The woodchuek's burrow system usually has several entrances and a grass nest in a side tunnel. It is used as a refuge by cottontails, opossums and skunks, and is enlarged for use by foxes.

Striped Skunk (Mephitis mephitis)

Recognized by its black body (4-10 pounds, 13-18 inches, plus 7-10 inch tail), narrow white stripe up middle of forehead, and broad white area on nape which usually divides into a V at the shoulders, the skunk is famous for the obnoxious odor of the fluid it secretes from 2 glands near the base of the tail. It is found throughout the state except in a few Tidewater counties, and prefers farm land and clearings, where it makes its burrow. It lives mainly on insects and small rodents which it obtains mostly by rooting and digging. Vegetable matter and turtle and bird eggs are also eaten.

Mating takes place in early spring; 9 weeks later 4-8 young are born. Only 1 litter is produced each year, in a nest of leaves and grass in a burrow or eavity. Young

are weaned in 7 weeks and stay with parents (father rejoins family after young are well developed) through winter.

Found in the rock slides and rough forests of western Virginia is the *spotted skunk*, which is smaller and does not have continuous white stripes on its back.

Opossum (Didelphis virginiana)

The opossum is the only native North American marsupial; that is, the female has an abdominal pouch which is used for carrying and nursing the young. It is found in every Virginia county in a variety of locations (woods, fields, swamps, cities) and is not particular about what it eats (anything from leaves to carrion).

The possum looks like a house cat-sized grinning pig, has grayish-white fur, white face, black ears and a rat-like tail. Hind foot has blunt "big toe" which can be moved at right angles to other 4.

It lives in tree cavities, ground burrows of other animals, or under buildings; it is most active at night, and "plays possum" (feigns death) when disturbed or attacked. Breeding age is reached before 1 year of age, and 2 litters a year, in spring and fall, are not unusual in Virginia. After a gestation period of 11-12 days, 8-18 young the size of honey bees are born; they crawl into the mother's stomach pouch where only 13 are able to nurse, the rest dying. After 2 months the young begin to leave the pouch, often riding on their mother's back.

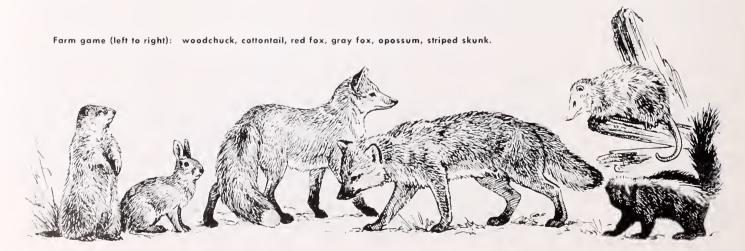
The possum is a staple item in the diet of foxes and other predators, which otherwise would be destroying the more popular game animals such as rabbits.

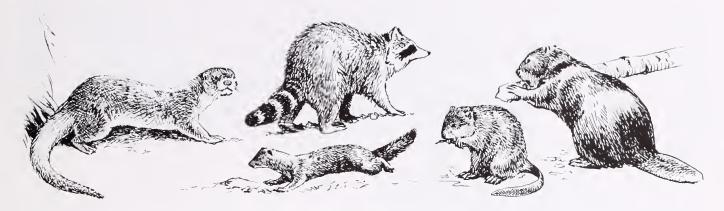
Wetlands Game

Raccoon (Procyon lotor)

This grizzled gray animal (18-28 inches long plus 8-12-inch tail; 12-35 pounds) with a black mask and rings of yellowish white and black on its tail is found throughout Virginia (less common in the west) in hardwood forests near water. Food, which is often "washed" before eating, includes fish, erayfish, turtles, birds and their eggs. miec. eorn, nuts, fruits, and vegetables.

Mainly nocturnal, the coon is an excellent climber and a good swimmer. It makes its den either in a tree hollow





Wetlands game (top row, from left): otter, raccoan; (bottom raw, from left): mink, muskrat, beaver.

or in the ground under a ledge or tree. Probably monogamous, raccoons mate in January to June, after hibernation ends, and 1-6 blind young are born 60-73 days later. They are weaned in 2 months, but stay with the parents for a year.

The raccoon is intelligent, curious and a courageous fighter. Its sense of touch, particularly in its nose and forepaws, is highly developed.

Muskrat (Oudatra zibethicus)

A large brown rodent (10-14 inches long, plus tail 8-11 inches long; 1-3 pounds) with a silvery belly and a long, naked black tail flattened from side to side, the "rat" is Virginia's most important furbcarer. It lives in underground burrows in mud banks (including farm pond dams) and in conical houses built of mud, sticks, reeds, and leaves, in fresh or brackish ponds, streams and marshes throughout the state. It is polygamous, and breeds several times a year in Virginia; 3-6 young are produced 28-30 days after mating. Its principal foods are underground tubers, woody roots and stems, and the bark of succulent shrubs, bordering water courses. Also eaten are cattails, flags, arrowheads, rushes, grasses and mussels.

Beaver (Castor canadensis)

The beaver is America's largest rodent; its body (25-30 inches, 30-60 pounds) is rich brown in color; its scaly tail (9-10 inches long) is shaped like a paddle (flat from top to bottom). A stick-and-mud dam across a stream or a large conical house of similar material at the edge of a lake, and tree stumps showing tooth marks, reveal its presence.

Once plentiful in Virginia, the beaver, as a result of overtrapping and habitat destruction, was exterminated in the state by 1911. Beaver from other states were released in Virginia from 1932 through 1948, and now beaver are well established in more than half of the state's counties.

Apparently beavers mate for life. They breed in January-February, and 65-128 days later 2-8 young are born. They are weaned at 6 weeks, and are mature at 2 years when they are driven from the colony.

Food consists of bark and outer wood of poplars (aspens),

alders, birches, willows, and other trees. Aquatic plants are also eaten. Beaver fur is noted for its lustrous beauty.

Mink (Mustela visou)

Surprisingly common for such a valuable and seldom seen animal, the mink is found in thickets and woodlands near water throughout Virginia. Like its weasel relatives (such as the long-tailed weasel and the much rarer least weasel, both found in Virginia), the mink is noted for its bloodthirsty disposition. Mice and rabbits are its most frequent victims, but birds, snakes, muskrats, frogs, crayfish, salamanders, fish, and poultry are also taken. It is identified by its short legs, rich dark brown fur with a white chin patch, and white spots on its belly. Its tail is slightly bushy. It grows to 28 inches long (8 of which is tail) and weighs up to $3\frac{1}{2}$ pounds, males being the larger.

Polygamous breeding takes place in February or March: 3-8 young are born 45-60 days later, are weaned in 5 weeks, and leave the den at 6-8 weeks.

The mink hunts mainly at night, in the water as well as on land. It is fearless, and solitary except when the young are being raised. Its fur is beautiful and durable.

Otter (Lutra canadeusis)

Abundant in Virginia's river swamps and becoming increasingly common in the state's mountain rivers and creeks, the otter is a large weasel-like mammal (up to 5 feet long, including 1-foot tail; up to 30 pounds) rich brown above with a silvery sheen below, and with small ears and a broad snout. Its feet are webbed and its tail is thick at the base, tapering toward the tip. It is a superlative swimmer, and its pelt is practically tops both in beauty and in quality.

Otters feed largely on fish, but may kill muskrats, young beavers, ducks, poultry, and birds. They live in a den dug in the bank of a stream or lake, and they probably mate for life, beginning to breed at 1 year of age. About two months after mating, 1-4 blind young are born, from February to April or earlier. The pups' eyes open at 25-35 days, and the young are weaned at 4 months. The family stays together a year, with both parents caring for the young.

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The Sora

By DR. J. J. MURRAY Lexington, Virginia

LTHOUGH I am not at all opposed to hunting so long as it is reasonable and sportsmanlike, my interest in bird study has taken up so much of my spare time that I have done no hunting myself for many years. In one of my last hunting experiences, I decided to show one of my hunter friends in this mountain country what sora shooting in tidewater marshes was like. So far as I know, no one had ever hunted sora in the Valley of Virginia, but I knew of a shallow, grassy pond where in the fall they were abundant. So one afternoon I took my friend out to Cameron's Pond on the edge of Lexington, and to his great excitement we brought back a good bag of the fat little rails.

One of the most popular kinds of hunting in Tidewater Virginia, sora hunting is not a difficult type of shooting. As one man poles the boat through the shallow water, the other, posting himself at the bow, can be sure of plenty of shots as the birds rise in front of him and with dangling feet make a short and awkward flight before they drop into the grass again.

The birds are abundant in the freshwater marshes in fall, particularly in September and October. They are much less common in spring. Formerly, before a better code of ethics was accepted by sportsmen and more stringent laws enacted, they were sold by the wagon load in the markets of Richmond and Petersburg. Dr. William

Cabell Rives, author of our first state bird book. A Catalogue of the Birds of the Virginias, stated that two Richmond pot hunters killed 1.235 sora in a James River marsh in two days, on September 16 and 17, 1881. In the fall the birds are very fat and tasty.

Sora nest in freshwater marshes from Canada to southern Pennsylvania and winter from Florida south. Although they occur with some regularity in western Virginia, Tidewater is their favorite stopping place. The nests are made of grasses, are placed on the ground, and usually contain 10 or 12 buffy-colored, spotted eggs.

They can be told from other rails by their stubby bills and their black faces and throats. They are more often heard than seen, although when one stands quietly near an opening in the marsh he will sometimes see a sora step furtively into the open to feed, only to dart back into hiding at the slightest movement. They fly poorly, swim well, but prefer to run through the grass. The eall of the bird when disturbed is a sharp 'keek.'

The travels of the sora form one of the mysteries of nature. As every Tidewater hunter knows, it is a bird of feeble flight. Where does a bird, which otherwise prefers to run and hide in the grass and which rarely flies more than 15 or 20 feet when flushed, suddenly get the determination and the power to fly from Canada to the James River marshes in Virginia? It is one of the minor miracles of nature.



A. Ree Ellis New Game Commissioner

A. Ree Ellis, farmer and real estate broker, has been appointed as the Seventh Congressional District member of the state Commission of Game and Inland Fisheries.

Governor J. Lindsay Almond Jr. made the appointment October 7. Mr. Ellis was appointed to fill the unexpired term of the late commissioner Thomas G. Herring of Dayton, which expires June 30, 1963.

For many years Mr. Ellis has been active in the work of the Waynesboro Game and Fish Protective Association, being a charter member of the organization. He headed the organization as president. He has been an active hunter and fisherman and for years served as a director of the Waynesboro Athletic Club. He is presently a director of the Waynesboro Chamber of Commerce and is a member of the Kiwanis Club, having served as a member of the board of directors. Mr. Ellis is a member of the First Presbyterian Church and is a Mason.

Born in Augusta County about five miles from Waynesboro, Mr. Ellis is a graduate of Waynesboro High School and Virginia Polytechnic Institute, class of 1924. He is married to the former Miss Helen Cash of Waynesboro. They have two children, Sally, of Chapel Hill, North Carolina, and Randy, of Richmond. Mr. and Mrs. Ellis reside on Route 1, Waynesboro.

Over 225 Virginia Schools Now Entered in Wildlife Essay Contest

How does wildlife benefit from the wisc use of soil, forests and water? Students from at least 228 Virginia schools are pondering that question this fall as they write essays for the 13th Annual Wildlife Essay Contest co-sponsored by Virginia game commission and the Virginia Division of the Izaak Walton League.

Contest packets which include litera-

ture from the U. S. Forest Service, the U. S. Soil Conservation Service, the U. S. Public Health Service and the American Forest Products Industries as well as from the game commission and the Izaak Walton League, are being sent to every interested teacher in the 228 schools which have entered the 1959-1960 contest. Last year 373 schools entered the contest and 199 actually submitted essays.

Contest prizes include a \$400 college scholarship and \$1,400 in cash prizes.



State Biologist Begins Selective Fish Poisoning Study

State game commission fish biologist Jack Sheridan is working now to find out if undesirable fish in old Tidewater ponds that can't be drained can be killed by poisoning with copper sulphate. The amount of copper sulphate necessary to kill bass, bluegill, crappie, yellow perch, white perch, bullheads, shiners and carp is being determined in 12 tanks set up under a tarpaulin provided by the army on Camp A. P. Hill. The biologist expects to find that it takes less of the poison to kill the undersirable fish than it takes to kill the game fish. The technique will be field tested

for two years before being recommended.

Sport Fishermen Urged To Keep Log Book Catch Records

The Virginia Fisheries Laboratory at Gloucester Point is expending considerable effort to learn the habits and other facts about fishes which are taken by sport and commercial fishermen. To measure the abundance of fishes of different kinds from year to year, they need the support of these fishermen.

Record books are given each year to any sport fisherman who is willing to keep a record of his fishing trips in the tidewaters of Virginia. Any one desiring a log book may obtain it by writing to the Virginia Fisheries Laboratory at Gloucester Point, Virginia.

Personnel at Southeastern Conference

Personnel of the Virginia game commission played a leading role in the Thirteenth Annual Conference of the Southeastern Association of Game and Fish Commissioners held October 25-27 in Baltimore. The commission's executive director, Chester Phelps, as president of the Southcastern Section of the Wildlife Society, presided at this section's meeting, while Virginia's education chief, J. J. Shomon, was elected president of the southeastern states' information-education section, and R. S. Purks, supervising game warden, was named to the southeastern law enforcement section board of directors.

Fish division assistant chief Robert G. Martin was 1958—1959 Secretary-Treasurer of the American Fisheries Society, Southern Division, and fish biologist Jack Hoffman served on the fish session program committee. Game biologist Herman J. Tuttle, game biologist Robert H. Giles and education assistant chief Stuart P. Davey presented technical papers. Game warden Fred Brown of Fairfax County was named Virginia's outstanding warden.

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National Forest Timber Harvest Up

More timber was harvested under scientific management from national forests in the fiscal year 1959 than ever before, bringing the total use of the forests to an all-time high, the U. S. Department of Agriculture announced.

Field offices of USDA's Forest Service reported a cut of $8\frac{1}{3}$ billion (8,340,517,000) board fect. This is a jump of almost 30 percent over the 1958 cut of $6\frac{1}{2}$ billion (6,420,701,000) board feet and is the greatest 12-month increase in harvest yet reported.

Screen Tours at Charlottesville

The Charlottesville Turkey Sag Bird Club is sponsoring a series of three Audubon Screen Tours this season at Maury Hall on the grounds of the University of Virginia at 8:00 p.m. Schedule for the remaining programs is: "Between the Tides" by Robert C. Hermes, December 10; and "Motmots and Mayas" by Ernest P. Edwards, February 26. Tickets may

SHING

15-year-ald Bill Russell af Virginia Beach stretches aut a 48-paund channel bass at the Virginia Beach Fishing Pier. Russell is the yaungest angler ta land a channel bass fram the run which began September 27.

be obtained by writing to A. B. Davenport, Route 2, Box 232, Charlottesville.

Fishing Newsreel For Clubs

The Denison Johnson Corporation of Mankato, Minnesota, has just released its Anglers News Reel No. 2, a 15-minute, 16 mm. movie with sound. The series of sequences take the viewer to such widely separated events as the Annual Tuna Tournament in the Bahamas, a fishing tournament for kids in New Hampshire, and one for old-sters in Holland. Coverage is given the great Metropolitan Miami Fishing Tournament with shots of the colorful

COMPLAINTS SPORTING GOODS

opening day parade and also of some exciting sailfish action. A three-minute bass fishing scries in color, in the gorgeous autumn scenery on a Virginia bass pond, is included, and the film winds up with vivid color and lots of action fishing for silver salmon and grayling in Alaska and the Yukon.

Clubs and those who want the film for TV may obtain it by writing the Denison Johnson Corporation at 720 Minneopa Road, Mankato, Minnesota.

Funds Available for Roadside Areas

Each state has an opportunity to obtain absolutely without cost scenic natural areas adjacent to public highways constructed with federal aid funds,

the Wildlife Management Institute reports. Under existing law a state may use up to three percent of the money received annually for highways assistance for the acquisition of "such adjacent strips of land of limited width and primary importance for the preservation of the natural beauty through which highways are constructed . . ." and funds apportioned to the state in any year under the Act may "be used by it for the purchase of such adjacent strips of land without being matched by the state."

No state ever has used assistance money for that purpose. Wisconsin is considering making application for the purchase of land between a highway and a recreation stream. Because it never has received applications, the Bureau of Public Roads has no specifications to instruct states what lands might be purchased. Here is an opportunity for garden clubs and similar organizations to go to work.



Messrs. Nick Nickalas and William R. Haverty, Lt. Cal. Ernest C. Parks, Past Canservation Officer, and Mr. Walter C. Kella, (left ta right) pase with the buck killed by Haverty recently at Fart Eustis. All avid bawmen, the three have felled aver 51 deer during the past decade with baw and arraw.

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